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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/635,988	08/09/2000	Thomas B. Brown	MSI-565US	5702

22801 7590 04/21/2004

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EXAMINER

EL CHANTI, HUSSEIN A

ART UNIT	PAPER NUMBER
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2157

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DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/635,988

Applicant(s)

BROWN ET AL.

Examiner

Hussein A El-chanti

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. This action is responsive to amendment received on Jan. 23, 2004. Claims 39-48 have been newly added. Claims 1-48 are pending examination.

Claim Objections

2. Claim 40 is objected to because of the following informalities:

Line 2 of the claim states "commend". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 8, 9, 16, 20, 24-26, 28, 30-38 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Gunningberg et al in IEEE/ACM Transactions on Volume: 3 Issue (referred to hereafter as Gunningberg).

Gunningberg teaches the invention as claimed including a RPC response time performance measurements for various sizes (see abstract).

As to claims 1 and 30, Gunningberg teaches a method and a computer readable medium having computer-executable instructions when executed perform a method for facilitating speedy communication packets between entities on a network, the method comprising:

 sending a delay-disable command (see page 411 col. 2, second paragraph lines 8-13);

sending a set of packets from a sending entity to a receiving entity (see page 416 col. 2, lines 56-63).

As to claim 2, Gunningberg teaches the method of claim 1 wherein the set of packets includes two packets sent back-to-back (see page 416 col. 2, lines 56-63).

As to claim 3, Gunningberg teaches the method of claim 1 wherein the set of packets consists of a first bandwidth-measurement packet and a second-bandwidth-measurement packet, wherein the second packet is sent immediately after the first packet (see figure Table II, Fig. 9 and page 416 col. 2, lines 56-67 and page 417 col. 1, first paragraph, user sends consecutive bandwidth measurement packets).

As to claim 4, Gunningberg teaches the method of claim 1 wherein the network is TCP (see page 411 col. 2, second paragraph lines 1-15).

As to claim 5, Gunningberg teaches the method of claim 1 wherein the delay-disable command disables the Nagle Algorithm on one or more communication devices on the network (see page 411 col. 2, second paragraph lines 8-13).

As to claim 6, Gunningberg teaches the method of claim 1 wherein the delay-disable command is TCP_NODELAY (see page 411 col. 2, second paragraph lines 8-13).

As to claim 8, Gunningberg teaches a computer-readable medium having computer-executable instructions that when executed performs the method as recited in claim 1 (see page 416 col. 2, lines 56-63).

As to claims 9, 26 and 31, Gunningberg teaches a method and a computer readable medium having computer-executable instructions when executed perform a

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method for facilitating speedy communication packets between entities on a network,
the method comprising:

 sending a set of packets from a sending entity to a receiving entity,
wherein a transmission delay between packets in the set is intolerable (see page 416
col. 2, lines 56-63).

 immediately thereafter sending at least one "push" packet to avert a
transmission delay between packets in the set, wherein the delay is caused by packet
buffering of a communication device on the network (see page 415 col. 1 and 2, "E.
Boundary Effects", the user sends packets where the push packet is any packet with
 $S_{\text{byte}} - b_{\text{sent}}$ is less than half the maximum advertised window R).

As to claims 16, 28 and 32, Gunningberg teaches a method and a computer
readable medium having computer-executable instructions when executed perform a
method for facilitating speedy communication of packets between entities on a network
the method comprising:

 sending a set of packets from a sending entity to a receiving entity
wherein a transmission delay between packets is set intolerable (see page 416 col. 2,
lines 56-63);

 immediately before sending at least one "priming" packet to avoid a
transmission delay between packets in the set wherein the delay is caused by flow-
control functions of a communication device on the network (see page 410 col. 2 lines
61-67).

As to claim 20, Gunningberg teaches the method of claim 16 further comprising establishing a TCP connection between the sending entity to the receiving entity wherein establishing is just before the sending of the set of packets (see page 416 col. 2, lines 56-63).

As to claim 24, Gunningberg teaches a method for facilitating bandwidth measurement between two entities on a network, the method comprising:

 sending a delay-disable command (see page 411 col. 2, second paragraph lines 8-13);

 sending a pair of bandwidth-measurement packets from a sending entity to a receiving entity (see figure Table II, Fig. 9 and page 416 col. 2, lines 56-67 and page 417 col. 1, first paragraph, user sends consecutive bandwidth measurement packets).

As to claim 25, Gunningberg teaches the method of claim 25 further comprising receiving a bandwidth calculation based upon measurements related to the pair of packets (see figure Table II, Fig. 9 and page 416 col. 2, lines 56-67 and page 417 col. 1, first paragraph, user sends consecutive bandwidth measurement packets).

As to claim 33, Gunningberg teaches an apparatus comprising:

 a processor (see page 411 col. 2, second paragraph lines 1-15, it is inherent for the network to have a processor to process the Nagle algorithm and other applications);

 a transmission-delay avoider executable on the processor to:

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send a delay-disable command (see page 411 col. 2, second paragraph lines 8-13);

send a set of packets from a sending entity to a receiving entity (see page 416 col. 2, lines 56-63).

As to claim 34, Gunningberg teaches an apparatus comprising:

a processor (see page 411 col. 2, second paragraph lines 1-15, it is inherent for the network to have a processor to process the Nagle algorithm and other applications);

a transmission delay avoider executable on the processor:

sending a set of packets from a sending entity to a receiving entity, wherein a transmission delay between packets in the set is intolerable (see page 416 col. 2, lines 56-63).

immediately thereafter sending at least one "push" packet to avert a transmission delay between packets in the set, wherein the delay is caused by packet buffering of a communication device on the network (see page 415 col. 1 and 2, "E. Boundary Effects", the user sends packets where the push packet is any packet with $S_{byte} - b_{sent}$ is less than half the maximum advertised window R).

As to claim 35, Gunningberg teaches an apparatus comprising:

a processor (see page 411 col. 2, second paragraph lines 1-15, it is inherent for the network to have a processor to process the Nagle algorithm and other applications);

a transmission delay avoider executable on the processor:

sending a set of packets from a sending entity to a receiving entity wherein a transmission delay between packets is set intolerable (see page 416 col. 2, lines 56-63);

immediately before sending at least one "priming" packet to avoid a transmission delay between packets in the set wherein the delay is caused by flow-control functions of a communication device on the network (see page 410 col. 2 lines 61-67).

As to claim 36, Gunningberg teaches a modulated data signal having data fields encoded thereon transmitted over a communications channel, comprising:

a first field including a delay-disable command (see page 411 col. 2, second paragraph lines 8-13);

a second field including a first bandwidth measurement packet;

a third field including a first bandwidth measurement packet (see figure Table II, Fig. 9 and page 416 col. 2, lines 56-67 and page 417 col. 1, first paragraph, user sends consecutive bandwidth measurement packets).

As to claim 37, Gunningberg teaches a modulated data signal having data fields encoded thereon transmitted over a communications channel, comprising:

a first field including a first bandwidth measurement packet;

a second field including a first bandwidth measurement packet (see figure Table II, Fig. 9 and page 416 col. 2, lines 56-67 and page 417 col. 1, first paragraph, user sends consecutive bandwidth measurement packets).

A third field including a "push" packet facilitating minimization of transmission delay between the first and the second packets, wherein the delay is caused by packet buffering of a communication device on the network (see page 415 col. 1 and 2, "E. Boundary Effects", the user sends packets where the push packet is any packet with $S_{\text{byte}} - b_{\text{sent}}$ is less than half the maximum advertised window R).

As to claim 38, Gunningberg teaches a modulated data signal having data fields encoded thereon transmitted over a communications channel, comprising:

a first field including a "priming" packet (see page 410 col. 2 lines 61-67);

a second field including a first bandwidth measurement packet;

a third field including a first bandwidth measurement packet (see figure Table II, Fig. 9 and page 416 col. 2, lines 56-67 and page 417 col. 1, first paragraph, user sends consecutive bandwidth measurement packets).

wherein the "priming" packet facilitates minimization of transmission delay between packets, wherein the delay is caused by flow control functions of a communication device on the network (see page 410 col. 2 lines 61-67).

As to claim 41, Gunningberg teaches a method comprising:

sending a delay disable command (see page 411 col. 2, second paragraph lines 8-13);

while the communications delay is disabled, sending a set of packets from a sending entity to a receiving entity (see page 416 col. 2, lines 56-63).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gunningberg in view of Munger et al., U.S. Patent No. 6,502,135 (referred to hereafter as Munger).

As to claim 7, Gunningberg teaches a method for facilitating speedy communication packets between entities on a network comprising sending a delay-disable command and sending a set of packets from a sending entity to a receiving entity executed by a computer-executable instructions.

Gunningberg doesn't teach the limitation "a computer-executable instructions at an application layer in accordance with an OSI model". However Munger teaches instructions executed at an application layer in accordance with an OSI model (see col. 4 lines 1-15).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Gunningberg in view of executing the instruction at an application layer in accordance with an OSI model as in Munger. One would be motivated to modify Gunningberg in view of executing the instruction at an application layer in accordance with an OSI model because doing so would the computer program to be executed in a framework for international standards in heterogeneous computer network architecture.

As to claim 12, Munger teaches the method of claim 9 wherein the communication device is a proxy server (see col. 1 lines 45-60).

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gunningberg in view of Khalil et al. (referred to hereafter as Khalil),

Gunningberg teaches a method for facilitating speedy communication of packets between entities on a network the method comprising sending a set of packets from a sending entity to a receiving entity wherein a transmission delay between packets is set intolerable and immediately before sending at least one "priming" packet to avoid a transmission delay between packets in the set wherein the delay is caused by flow-control functions of a communication device on the network (see the rejection of claim 16).

Gunningberg doesn't teach the limitation "the flow-control function is a Slow Start Algorithm". However Khalil teaches sending a priming packet to avoid a transmission delay caused by Slow Start Algorithm (see page 168).

It would have been obvious for one of the ordinary skill in the art at the time of the invention to modify Gunningberg in view of flow-control function is a Slow Start Algorithm as in Khalil. One would be motivated to modify Gunningberg in view of sending a priming packet to avoid a transmission delay caused by Slow Start Algorithm because doing so would result in a faster connection in a network since avoiding the Slow Start Algorithm would overcome a 200ms delay at the receiving entity and would result in the immediate processing of the received data packets.

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6. Claims 10, 11, 13-15, 17-19, 22, 23, 27, 29 39, 40, and 42-48 do not teach or define any new limitations to claims 1-9, 16, 33 and 41 and therefore are rejected for similar reasons.

7. Applicant's arguments filed have been fully considered but they are not persuasive.

In the remarks, the applicant argues in substance that; A) Gunningberg does not teach disabling Nagle Algorithm and sending of multiple RPC's back-to-back together B) Gunningberg does not teach a "push" data segment C) Gunningberg does not teach sending a delay disable command and sending a set of packets from a sending entity to a receiving entity together D) Gunningberg does not teach transmission delay between packets is intolerable E) Gunningberg does not teach sending a prime packet.

In response to A) Gunningberg discloses both results for network speed when Nagle Algorithm is or is not disabled, Gunningberg disables Nagle algorithm and sends packets back to back at the same time the speed of the network is calculated in both cases as evident by Table II and col. 2 on page 416.

In response to B) Gunningberg teaches sending packets directly without delay independent of Nagle algorithm if the packet satisfies the condition $S_{byte} - b_{sent}$ is less than half the maximum advertised window R and therefore any packet that satisfies the relation is considered as a Push packet. Gunningberg also teaches sending a PUSH packet to empty the data segments to be transmitted (see col. 1 lines 50-67 on page 411).

In response to C) Gunningberg discloses both results for network speed when Nagle Algorithm is or is not disabled, Gunningberg disables Nagle algorithm and sends packets back to back at the same time the speed of the network is calculated in both cases as evident by Table II and col. 2 on page 416.

In response to D) Gunninberg measures RPC response time. The goal of the experiment is to measure the least amount of time to receive the responses for the RPC's back-to-back packets (see page 416 col. 2, lines 56-67) and therefore Gunninberg meets the scope of the claimed limitation "transmission delay between packets in the set is intolerable".

In response to E) Gunninberg teaches sending data packets one at a time through the connection. Gunninberg teaches sending multiple data packets and therefore the first packet that is sent through the connection is considered as a "prime" packet (see page 410 col. 2 lines 61-67). There is no limitation on the time that the prime packet is sent before the back-to-back packets and therefore Gunninberg meets the scope of the claimed limitation "priming" packet.

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

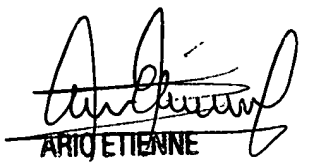
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein A El-chanti whose telephone number is (703)305-4652. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703)308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein El-chanti

April 14, 2004


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